Limbal stem cell diseases.

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Public Summary:
This review article pretends to highlight the importance of using the new non-invasive imaging tests to confirm the diagnosis and stage limbal stem cell deficiency characterized by the loss or disfunction of the limbal stem cell population of the cornea.

Scientific Abstract:
The function of limbal stem/progenitor cells (LSCs) is critical to maintain corneal epithelial homeostasis. Many external insults and intrinsic defects can be deleterious to LSCs and their niche microenvironment, resulting in limbal stem cell dysfunction or deficiency (LSCD). Ocular comorbidities, frequent in eyes with LSCD, can exacerbate the dysfunction of residual LSCs, and limit the survival of transplanted LSCs. Clinical presentation and disease evolution vary among different etiologies of LSCD. New ocular imaging modalities and molecular markers are now available to standardize the diagnosis criteria and stage the severity of the disease. Medical therapies may be sufficient to reverse the disease if residual LSCs are present. A stepwise approach should be followed to optimize the ocular surface, eliminate the causative factors and treat comorbid conditions, before considering surgical interventions. Furthermore, surgical options are selected depending on the severity and laterality of the disease. The standardized diagnostic criteria to stage the disease is necessary to objectively evaluate and compare the efficacy of the emerging customized therapies.